

Collapsible Toolkit

Field of Invention

The present invention relates to a collapsible toolkit.

Background of Invention

Referring to Figures 7 to 10, an extensible toolkit includes a first tool 110 and a second tool 120. The tools 110 and 120 are covered by means of an upper cover 130 and a lower cover 130'. The first tool 110 includes a polygonal space 111, a slot 112 communicated with the polygonal space 111 and pairs of recesses 113 communicated with the slot 112. The first tool 110 further includes a first type of screwdriver 114. The second tool 120 includes a slide 121 for sliding in the polygonal space 111, a recess 122 defined in the slide 121, a shank 123 for sliding in the slot 112, a hole 128 defined in the top of the shank 123 and two holes 125 defined in two sides of the shank 123 and communicated with the hole 128. The second tool 120 further includes a second type of screwdriver 127. The polygonal hole 111 and the recess 122 cooperate in order to receive a bolt or nut. That is, the tools 110 and 120 form a wrench. A detent 126 is trapped in each hole 125. The detents 126 can be put in selective one of the pairs of recesses 113 so as to retain the second tool 120 in selective one of positions relative to the first tool 110. A spring 129 and a button 124 are put in the hole 128. The button 124 includes two recesses each with a shallow portion and a deep portion. The button 124 can lock and release the detents 126. The upper cover 130 is secured to the lower

1 use of the extensible toolkit. Firstly, it is inconvenient and sometimes
2 dangerous to carry the extensible toolkit because the screwdrivers 114
3 and 127 are always exposed. Secondly, the holes 125 and 128, the
4 detents 126, the spring 129 and the button 124 form a complicated
5 mechanism for locking the second tool 120 in position relative to the first
6 tool 110. Thirdly, the rivets 131 are inadequate to hold the tools 110 and
7 120 and the covers 130 and 130' together. Fourthly, the rivets 131 are
8 aesthetically unpleasing.

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10 The present invention is therefore intended to obviate or at least alleviate
11 the problems encountered in prior art.

12 13 **Summary of Invention**

14 It is an objective of the present invention to provide a collapsible toolkit
15 that can be carried conveniently and safely.

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17 It is an objective of the present invention to provide a simple collapsible
18 toolkit.

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20 It is another objective of the present invention to provide a robust
21 collapsible toolkit.

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23 According to the present invention, a collapsible toolkit includes a first
24 frame, a second frame connected with the first frame and at least one tool
25 of a first type pivotally connected with the first frame between a
26 collapsed position in the first frame and an extended position outside the

1 first frame.

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3 Other objects, advantages and novel features of the invention will become
4 more apparent from the following detailed description in conjunction
5 with the attached drawings.

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7 **Brief Description of Drawings**

8 The present invention will be described via detailed illustration of the
9 preferred embodiment referring to the drawings.

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11 Figure 1 is a perspective view of a collapsible toolkit according to the
12 preferred embodiment of the present invention.

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14 Figure 2 is an exploded view of the collapsible toolkit of Figure 1.

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16 Figure 3 is similar to Figure 1 but shows the collapsible toolkit in another
17 position.

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19 Figure 4 is a top view of the collapsible toolkit of Figure 1 in another
20 position.

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22 Figure 5 is similar to Figure 4 but shows the collapsible toolkit in another
23 position.

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25 Figure 6 is similar to Figure 4 but shows the collapsible toolkit in another
26 position.

1 Figure 7 is an exploded view of an extensible toolkit of prior art.

2

3 Figure 8 is a perspective view of the extensible toolkit of Figure 7.

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5 Figure 9 is a cross-sectional view of the extensible toolkit of Figure 8.

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7 Figure 10 is a top view of the extensible toolkit of Figure 8.

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9 **Detailed Description of Preferred Embodiment**

10 Figure 1 shows a collapsible toolkit 10 in a collapsed position according
11 to the preferred embodiment.

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13 Referring to Figure 2, the collapsible toolkit 10 includes a first frame 20,
14 a second frame 30 pivotally connected with the first frame 20, at least one
15 tool 40 of a first type pivotally connected with the first frame 20, at least
16 one tool 50 of a second type pivotally connected with the first frame 20
17 and at least one tool 60 of a third type pivotally connected with the
18 second frame 30.

19

20 The first frame 20 includes a first member 25, a second member 22 next
21 to the first member 25, a third member 26 next to the second member 22
22 and a fourth member 21 between the third member 26 and first member
23 25. A space 23 is defined in the members. Two tubes 24 are formed
24 on the first member 25. A recess 27 is defined in the second member 22.
25 Recesses 28 are defined in the fourth member 21.

26

1 The second frame 30 includes a first member 35, a second member 36
2 next to the first member 35, a third member 37 next to the second
3 member 36 and a fourth member 38 between the third member 37 and
4 first member 35. A space 33 is defined between the members 35 to 38.
5 A tube 31 is formed on the first member 35. A recess 32 is defined in
6 the fourth member 38. A shaft 39 is formed on the fourth member 38
7 spanning the recess 32.

8

9 A pin 34 is fit in the tubes 24 and 31 so as to pivotally connect the first
10 frame 20 with the second frame 30. The pin 34 and the tubes 24 and 31
11 form a hinge.

12

13 An end of the tool 50 is put in the recess 27. The tool 50 is pivotally
14 connected with the second member 22 by means of a bolt 52 engaged
15 with a nut 53. The second member 22 is adequately thick so as to
16 encompass the bolt 52. The tool 50 can be put in the space 23.

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18 There are three tools 40 as shown. An end of each of the tools 40 is put
19 in related one of the recesses 28. The tools 40 are pivotally connected
20 with the fourth member 21 by means of a bolt 43 engaged with a nut 44.
21 The fourth member 21 is adequately thick so as to encompass the bolt 43.
22 The tools 40 can be put in the space 23. The tools 40 are screwdrivers.

23

24 The tool 60 includes a hook 61 for hooking the shaft 39 and an annular
25 head 62 for driving a bolt or nut. The hook 61 is put in the recess 32.
26 The tool 60 can be put in the space 33. The tool 60 is a box wrench.

1 Referring to Figure 3, the tool 60 is pivoted from the space 33. Now, the
2 collapsible toolkit 10 is used as a wrench.

3

4 Referring to Figure 4, the second frame 30 is pivoted from the first frame
5 20 so that the tools 40 and 50 can be pivoted from the space 23.

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7 Referring to Figure 5, one of the tools 40 is pivoted from the space 23.
8 The collapsible toolkit 10 is used as a screwdriver.

9

10 Referring to Figure 6, the tool 50 is pivoted from the space 23 for use.
11 The tool 50 is an Allen key.

12

13 The collapsible toolkit 10 is simple for saving detents and a button for
14 control such detents. The collapsible toolkit 10 is robust for including
15 bolts for securing tools.

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17 The present invention has been described via detailed illustration of the
18 preferred embodiment. Those skilled in the art can derive variations
19 from the preferred embodiment without departing from the scope of the
20 present invention. Therefore, the preferred embodiment shall not limit
21 the scope of the present invention defined in the claims.

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